T. Goldberg

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The Subscribers to the Southern Agriculturist are reminded, that the Price of the Journal was reduced to $3, to all those who paid in advance;—those who are still in arrears for this and former years are respectfully solicited to make their payments.

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The Southern Agriculturist.

(NEW SERIES.)

Vol. V. FOR JULY, 1845. No. 7.

For the Southern Agriculturist.

ADVICE TO THE UNINFORMED.

As all persons, places, and things have their peculiarites, let us try if we can point out some in the planting interest of South-Carolina, and if we discover any of the faults, we may be naturally led to the easiest means of correcting those errors. Do we not hear all complain that their lands are worn out, that they must clear more land and abandon the old fields, and yet do they not continue the same mode of planting the new field with the same crops of corn or cotton, year after year, until that field also is exhausted. Is it not plain that others whose lands do not wear out so rapidly, under a rotation of crops—such as corn, peas, cotton, potatoes and grass, in the succeeding years, even where no manure is added in either case, prolong the value of their lands, and increase their crops by this rotation without expense or trouble. The reason is that new lands contain various kinds of nourishment suited to various crops, chiefly derived from the decay of vegetable matters in their native woods. The ground is of course new to the first crop, whether of corn or cotton—by the proposed change, the land is equally new to the next crop planted on it, the first having only taken its peculiar share of what suited it best in the earth; so that you plant new land two years instead of one. Peas and potatoes are called ameliorating crops, because their chief nourishment is derived from the atmosphere, and they return to the ground at least as much in their decayed leaves and vines, as they had drawn from it in their growth. If then the proposed rotation be pursued, your field is still new land to the third and to the fourth crops, without any cost, expense or trouble. Here we propose to give the land a year of rest; as it is still in good heart, an abundant covering of grass, of fennel, and of weeds, will spring up in the next season, and if these be ploughed under while they are still green in the fall—the land will be as fresh as new

land, for a new course of corn, peas, cotton, potatoes, oats, slips, and grass. All this benefit is without the addition of one cart-load of manure.

The manure is not applied, because none is made or collected; and none is collected, because there is no fodder provided for the cattle, and they not being penned or stabled, of course no leaves, pine-straw or other vegetable matters are collected from the woods for their litter, to supply the waste and decay of that vegetable matter in the new land by which the good crops were produced. This is another fault, a grievous fault, the means of correcting is not only cheap but profitable. A few acres in a field should be reserved for hay every year, these should be ploughed and harrowed in the spring, the briars and weeds should be removed by some of the weakest people on the place, and you will have two good mowings of hay, probably three every year.

The more you feed your horses and cattle with this, the more good they do you; the horses do more work and better work, the cattle supply you all with milk, butter and cheese, both for food and for sale—both in winter and summer; and they more than defray the expense in the increased quantity and strength of the manure. At present, great numbers of half starved cattle die every spring during the prevalence of cold northeasterly winds; if well fed, the cattle should never die in the hands of the planter. When too old to be profitable, they may be fattened and sold to the butcher. The crops too, would be doubled by the application of the manure and litter, for this great increase, the application of manure should be made annually, and the planter is well rewarded for his care and labor, in collecting this manure during the winter, and in distributing it during the spring. The effect of it, however, instead of passing off in one year, or nearly so, might be rendered permanent and durable by the mixture of lime or marl with this vegetable and animal manure. One good manuring of this kind would continue useful from ten to fifteen years.

ALPHA.

From the Star of Florida.

ORANGES IN MIDDLE FLORIDA.

Among the numerous bounties of Providence granted to us in this favored region, we may safely include the *Orange* and the *Lemon*. They are not found an indigenous undergrowth in our forests, as in portions of East and South Florida; and in their culture we must bestow greater care while they are young, and be more

particular in selecting location, in order to be certain of success. With judicious attention, however, oranges may easily be raised here, not only in abundance for family consumption, but as an article of commerce. A few facts and observations are now thrown together, which may serve to direct public attention to the subject, may be of some service to those who have no knowledge or experience in the matter, and may induce those who know a great deal more about it than the writer does, to communicate their knowledge for the general good.

Adaptation of climate is the first question to be settled, and all the facts that we can safely rely on are limited to a very short space of time, less than twenty years. Before the fatal cold in February 1835, almost every emigrant to Middle Florida planted a few orange or lemon seed. Little or no attention was bestowed in protecting them from the cold, but the mildness of the winters was such, that some of the first planted were nearly old enough to bear, when cut down in 1835. During the two following winters, the cold was severe enough to kill the tender sprouts which put up from the old roots, and the idea of raising oranges was pretty generally abandoned. A few persons, enjoying favorable situations, persevered however, and by a little care protected their young trees, which grew very rapidly from the old roots, and in 1839 and in 1840 were rewarded by the pleasure of gathering fruit. This encouraged others to renew their exertions to nurse and prune up their old stumps, plant more seed, and take pains to shelter young trees during the winter. The result is that many thousand oranges were raised in Florida last year, which will be increased this year to tens of thousands. There are trees with bodies ten and twelve inches in diameter, the branches of which already extend eight or ten feet in every direction.

Let us now recur to the fatal February of 1835, and examine its peculiar characteristics. The preceding part of that winter was so mild as hardly to check vegetation. The common forest trees had retained their foliage like evergreens, until they were budding out with new verdue.

The orange trees were not the only sufferers; red oaks more than a hundred years old, were killed in great numbers. It could not have been the *degree of cold*, therefore, for we know that the red oak flourishes where the Mercury sinks below zero, while on the 8th February 1835 it stood here at 13° or 14° above that point. It is certain then that these giants of the forests were destroyed, not by the *intensity of the cold*, but by their *peculiar condition*. Their sap was in full circulation through their trunks and to the extremity of their branches; a warm rain had fallen a few days before; the change was very sudden, in a few hours from summer temperature down to 18° or 19° below the freezing point. The sap was turned to ice, and by its expansion large trees were riven open, as if by lightning. Had this intense cold been preceded by one or two slight frosts and a sharp North-west wind for a day or two, the sap would have receded into the earth. The buds and tender twigs

must have been killed, as often happens in the spring, but the trunks and larger boughs would have escaped. As a proof of this, it will be remembered that the oaks standing on northern exposures, or not budded out, were wholly uninjured. Let us bear in mind then that the greatest difficulty is to guard against sudden changes in the winter, when the warm spell has been sufficient to start a new growth in vegetation.

Planting seed.—This should be done soon after they are taken from the fruit. If seed are not very abundant, let them at first be buried in boxes of earth, kept moist enough to make them sprout; this will protect them from moles, and they can easily be removed to the nursery after they have sprouted. Place them in drills, two feet wide and ten or twelve inches apart, in the row. They require a rich mellow soil. Keep the ground clear of grass and weeds, and often stirred if it inclines to be stiff. It will greatly promote the growth to remove the branches while they are tender, until the plants attain the height at which you intend to let them spread out. It will be better to support each plant by a stake, driven down on the south side of it, tying it up as it grows to keep it straight. A broad blade of bear's grass is better than a string for tying, as it will not chafe the tender bark when agitated by wind. Some persons indulge the slovenly practice of permitting the lower limbs all to remain, with a view to protect the young tree from the cold, but this greatly retards the growth, often leaves the body ill-shaped, and is not at all necessary where other proper precautions are taken. Healthy suckers or offsets may be suffered to grow, where the nursery does not otherwise contain as many as are wanted, for these can be easily separated, forming so many additional trees.

The orange tree may be raised from cuttings, if they are kept shaded and watered through the dry weather of the first spring and summer. The lemon tree takes still more readily from cuttings. It is said that both will bear the third or fourth year, when the cuttings are taken from bearing trees. From some few experiments, all attempts to raise from cuttings of all sorts are recommended to be made in October and November, as they put out roots during the winter in our mild climate, although there may be no appearance of growth above ground, and which better enables them to stand the drought and heat of the next spring and summer.

The writer regrets that he has no facts to state in regard to grafting or budding. If these can be put in successful practice, there would be some advantage in using the *sour orange* for stocks, as they are hardier, bear earlier, and could receive grafts or buds from bearing trees of the sweet orange.

Protection against sudden colds.—This branch of the subject had better be treated in connexion with the culture of the nursery.—Orange seedlings should stand in the nursery, at the distances directed in planting, until three years old. Indeed, the less thrifty ones had better not be moved under four years. In November, erect a good shelter over them, made of pine tops, supported on sub-

stantial forks. This shelter should be close enough to prevent the sun from penetrating to such a degree as to warm the earth during the winter. It should be made several feet wider than the bed to be covered, closing down to the ground on the north and northwest.—Let it be often examined during the winter, and by no means be suffered to get out of order, or be removed, until all danger of cold is over in the spring; the young trees will then be found healthy and vigorous, the tenderest sprouts uninjured, and the leaves of a dark, rich, green color.

When the trees are older, and have been removed to the grove, the effect of a warm spell in winter may be counteracted, by scraping away the earth down to the top roots, so as to leave them bare for a foot or two from the tree. The *nights* are always cold enough at that season, to check the rising of the sap. Another plan, which has been successfully adopted, is to cut the small shallow or horizontal roots that are easily warmed by the sun. The roots that strike deeper into the earth, are not reached by the short warm spells of winter, so as to start the sap too soon, and expose the tree to injury from a sudden cold change. This plan is much the safest, until trees are four or five, or even six years old. It will retard their growth a little, but not near so much as to have their top branches badly frost-bitten. Sometimes young trees are so much affected by the cold, that they drop their leaves from the tender top branches, but will recover without further loss then few inches of the ends of limbs. All limbs fairly dead, ought to be at once pruned away. When young trees that have left the shelter of the nursery, send out very tender sprouts late in the fall, it is recommended to remove these at once, without waiting for the action of the cold, as they are sure to be injured, and can only serve to transmit their diseased sap into the healthy parts of the tree.

Transplanting.—The first remark is, (in immediate connexion with the matter last treated of,) that the months of October and November, are greatly to be preferred for this purpose. The removal of the tree at that season, is sure to prevent the sap from rising in it during any warm spell of winter, while the roots will strike so as to prepare for a vigorous growth, with the return of spring. Young trees set out last fall, have put out as vigorous shoots this spring, as those that had not been moved at all, while the tenderest shoots on the former were not touched by the frost, although on the latter they were. And in addition, it is observed that those transplanted in the fall are passing through the present severe drought with much less attention than those require which have been set out this spring.—Yet, if transplanting cannot be conveniently done in the fall, it should be deferred until the spring, unless the weather is very mild in winter. It is not safe to attempt it when the weather is cold, or the sap is not freely circulating.

In setting out more than one hundred and fifty orange trees, of different ages, during a period of seven years, *the only failures occurred when it was done in cold weather*.

If the nursery is convenient to the intended grove, it is easy, by choosing a wet time, to remove the trees with a good deal of earth adhering to the roots. The hole should be large enough to receive the roots without bending, and deep enough for the tree to stand a few inches deeper than in its original bed. First pour in water enough to settle the earth to the roots, without pressing or packing to bruise them. The hole should be filled with good rich loam, well pulverized, shovelled in gently, and plenty of water added on the top, so as to insure that the earth is brought closely in contact with the roots. A stake or two, according to the weight of the tree, should be firmly set to support, and prevent it from being shaken about by the wind, before it is firmly rooted. Care should be used in taking up the trees, not to bruise or bark the roots, and their length should depend upon the age and size of the tree. Roots 15 or 18 inches long, will answer for the ordinary size, at three or four years old. The tap root should be taken up as long as practicable, and carefully set out to its full depth. When trees are double, or furnish one or more offsets, these should be separated or split apart, some months before they are to be transplanted, in order that the wound may partially heal, as well as that each part may thus be supplied by its own set of roots. A broad chisel and mallet can be used in splitting to advantage, and if the parts are kept from re-uniting by a small wedge or pebble, they can be taken up with earth adhering to the roots, which is a very great advantage.

If the trees are to be removed some distance, the roots and bodies ought to be carefully wrapped in green moss as soon as taken out of the ground, and kept moist. If it is intended to keep them several days, it is safer to put a little clay mortar over the roots before wrapping them in moss.

The trees should be freely pruned at the time of transplanting, but by no means remove all the foliage; for *leaves* are almost as necessary to preserve life in an evergreen as *roots* are. If the trees require to be topped, or to have large limbs cut off, the wound should be covered with some cement, a little grafting-wax, common sealing-wax, or a mixture of cow-dung and clay. This prevents the evaporation of sap through the pores at the wound, as well as dews and rain from being received into the circulation before they are properly elaborated for that purpose by the proper organs of the plant.

Proper distance in the Grove is a question that cannot yet be fully decided from our own experience. Enough, however, is already known, to prove that in a strong generous soil, orange trees should stand at least 18 or 20 feet apart. Possibly, another 20 years may teach us that the distance should be one half greater than this.—Certainly, both for beauty and convenience, a horizontal growth should be encouraged as much as possible, and this can only be done by giving sufficient distance. Otherwise, as soon as the horizontal branches approach near to each other, they stop growing, or at all events, stop bearing, and the whole strength of the tree is directed to the top limbs, which soon grow to an inconvenient height.

Location is of great importance to success in the culture of the Orange with us, and fortunately experience has already shed much light on that point. We have places where the frosts of autumn and spring have hardly any injurious effect, and where tender vegetation is easily protected, during ordinary winters. These spots are usually on our *highest hills;* and of these, three localities appear to be peculiarly favored, viz: 1st. Those that lie on the S. or S. E. side of lakes, or other large bodies of water; 2d. Those that face the south, and are sheltered by grounds of the same, or a greater elevation, extending back in a north or north-west direction; and 3d. High ridges or table lands of considerable extent, dry, sandy, and remote from water. Large forest trees are observed to afford great protection against frost, while they, especially evergreens, shade the ground and keep back vegetation under them from starting to grow during the short warm spells of winter. But large trees, on the other hand, do great harm, during long droughts, drawing off the moisture of the earth from the smaller growth beneath them.

The great difference of *locality* in respect to frost, is illustrated very remarkably, on two adjoining plantations in a neighboring county, settled by two intelligent and enterprising gentlemen, some sixteen or eighteen years ago. The one selected for his residence, *a very high hill*, protected by a heavy forest on the north, and with a declivity open to the south. The other, made choice of a *slight eminence*, rising not more than 20 or 30 feet above an extensive valley, watered by a small creek, with the grounds of his garden and homestead declining to the north and west. Both these gentlemen entered with much ardor upon the culture of the orange, sparing no trouble or expense which their judgment and observation dictated to be proper. The *details* are omitted. The *results* are, that the resident of the *valley* has not had an orange tree to stand the winters, (in the open air,) long enough to bear him a single orange; while the proprietor of the *hill*, has probably the finest orange grove in Middle Florida, yielding much choice fruit for three or four years past, and promising from this time forward, to be a handsome source of revenue.

It may be proper, under the head of location, just to allude to the well known influence of a seaboard or salt atmosphere, in protecting the orange against the severity of winter. Our coast is generally low, and barren or marshy, unfit for residence or cultivation, but enterprise might find some desirable spots for orange groves, either on our islands, or on the main; on being reminded that this has been successfully done in a colder climate, along the seaboard of Georgia and South-Carolina.

Soil, in regard to its *basis* and *fertility*, should have some notice. As to *basis*, it seems to be unimportant, so far as we yet know, whether the subsoil is sand to a considerable depth, or the clay comes up very near to the surface. Orange trees, as old as any we yet have, are met with under both circumstances, equally productive, vigorous

and flourishing. There are a few of these, growing on a hill, where *red clay*, stiff enough to make good brick, is within a few inches of the surface, that thrive and bear equal to any of like age. This location is otherwise, one of the best in the country, to stand frost, although these trees are a little in advance of almost any others, in their time of budding and blossoming. Whether this may be because the horizontal roots lie shallower, and are more sensible to the approach of warm weather, or because the iron in the sub-soil exerts some influence, is left to the speculations of the curious. In giving the fact, however, it is not one peculiar in the orange, as the same location yields the earliest fruits and vegetables of all kinds in their season, without any extra care to force them.

If the subsoil is stiff or barren, it should be spaded up, ten or twelve inches deep, turning under a good top dressing of compost or rich loam, which will encourage the roots to strike deep, and enable the trees to stand drought, rendering them likewise less sensible of a little unseasonable warmth in winter. Cotton seed is found an excellent manure, also the cleanings of the cow-yard and stable, mixed with virgin soil into a good compost. As a top-dressing, marl, shell, or limestone should be used, spreading them for six or eight feet around the trees. Where either of these cannot be had, wood ashes are a very good substitute. Pulverized charcoal has proved highly valuable, half a bushel of it spread around each young tree, lightly spaded in; it keeps off insects from the roots, and imparts a beautiful green color to the foliage.

If the native soil is not very rich, manuring should be repeated every two or three years, until the trees have acquired pretty good size; but be not impatient if they are growing rapidly, that your trees do not yield much fruit. Remember that they are said to live and thrive for a century or more, and should therefore be generously treated in their youth. You may check their growth in various ways, producing a premature old age, and thus obtaining an untimely crop of fruit. Such experiments are rather curious than valuable, and if made at all, should be made on a small scale, otherwise they will prove the wisdom which rips open the goose to get the golden eggs.

Some few suggestions were intended also to be offered, respecting the diseases, insects, &c., which prove injurious to the orange tree, together with the appropriate remedies. Directions for pruning trees, and for gathering and preserving the fruit, deserve some notice; but these remarks have already extended farther than was designed, and the remaining topics may be very well deferred to some future occasion, when greater experience and observation, by those who are pioneers in this enterprize, may enable them to speak with more knowledge and certainty.

The object now in view will be fully attained, if what is already said may encourage and direct many more to engage in rearing the orange. A thrifty tree bearing a hundred oranges is well worth twenty dollars. The same tree, with very little additional care and

labor, may be confidently expected, five years hence, to yield an average crop of one thousand. Would not such a tree then be as well worth a hundred dollars? There was a single tree in St. Augustine, the crop of which is said to have sold in 1834 for eighty dollars. Such a tree was worth as much as a valuable slave, or a house that would hire for that sum. Surely, then, on the score of profit alone, the culture of the orange deserves more consideration than it has yet received from the citizens of Middle Florida. W.

Leon County, Fa., May 15th, 1845.

From Boussingault's Rural Economy.

IMPROVEMENT OF SOILS.

To improve a soil is as much as to say that we seek to modify its constitution, its physical properties, in order to bring them into harmony with the climate and the nature of the crops that are grown. In a district where the soil is too clayey our endeavour ought to be, to make it acquire to a certain extent the qualities of light soils. Theory indicates the means to be followed to effect such a change; it suffices to introduce sand into soils that are too stiff, and to mix clay with those that are too sandy. But these recommendations of science which, indeed, the common sense of mankind had already pointed out, are seldom realized in practice, and only appear feasible to those who are entirely unacquainted with rural economy. The digging up and transport of the various kinds of soil according to the necessities of the case, are very costly operations, and I can quote a particular instance in illustration of the fact: my land at Bechelbronn is generally strong; experiments made in the garden on a small scale showed that an addition of sand improved it considerably. In the middle of the farm there is a manufactory which accumulates such a quantity of sand that it becomes troublesome; nevertheless, I am satisfied that the improvement by means of sand would be too costly, and that all things taken into account, it would be better policy to buy new lands with the capital which would be required to improve those I already possess in the manner which has been indicated. I should have no difficulty in citing numerous instances where improvements by mingling different kinds of soil were ruinous in the end to those who undertook them.

A piece of sandy soil, for example, purchased at a very low price, after having been suitably improved by means of clay, cost its proprietor much more than the price of the best land in the country. Great caution is therefore necessary in undertaking any improvement of the soil in this direction,—in changing suddenly the nature of the soil. Improvement ought to take place gradually and by good husbandry, the necessary tendency of which is to improve the soil. Upon stiff clayey lands we put dressings and manures which tend to divide it, to lessen its cohesion, such as ashes, turf, long

manure, &c. But the husbandman has not always suitable materials at his command, and in this case, which is perhaps the usual one, he must endeavor by selecting his crops judiciously, crops which shall agree best with stiff soils, and at the same time meet the demands of his market, to make the most of his land. In a word, the true husbandman ought to know the qualities and defects of the land which he cultivates, and to be guided in his operations by these; and in fact it is only with such knowledge that he can know the rent he can afford to pay, and estimate the amount of capital which he can reasonably employ in carrying on the operations of his farm.

In an argillaceous or clayey soil, it would be absurd to persist in attempting to grow crops that require an open soil. Clayey lands generally answer well for meadows, and autumn ploughing is always highly advantageous to them by reason of the disintegrating effects of the ensuing winter frosts.

—

ARREST OF MOVING SANDS.

Sandy soils do perfectly well in countries which are not exposed to long droughts; their cultivation is attended with little expense, and they grow excellent crops of turnips, potatoes, carrots, and rye; but it is well to exclude clover, oats, wheat, and hemp, which require a soil of greater consistence. In southern countries, a system of irrigation is absolutely necessary, in connexion with the cultivation of sandy soils if they are not watered, they remain nearly barren; the only mode of making them productive is to lay them out in plantations of timber.

Those moving sandy plains of great extent, which are found in the interior of many continents, seem at first sight stricken with eternal barrenness. Nevertheless, the mobility of the sand of the desert, which permits it to be swept hither and thither, and to be tossed about like a liquid mass, depends less upon the total absence of argillaceous particles than upon the want of the moisture necessary to agglutinate or to fix its grains. The burning steppes of Africa and America have their oases here and there, the surface of which, moistened by a spring, is green with vegetation; and whenever sandy plains are bathed by a river, it is possible to render them fit for cultivation. In Spain, for instance, in the neighborhood of San Lucar de Baromeda, a powdery soil of extreme dryness has been fertilized by the hand of man. The mammillated downs of San Lucar are covered on the surface by a layer of quartzy sand, so loose that it is blown about by the wind; but by a happy disposition of things, a lower stratum of these downs is kept constantly moist by the waters of the Guadalquiver, and it is only necessary to remove the superficial sand, and to level the surface, in order to have a loose soil which unites in the highest degree two essential conditions of fertility, viz: openness, and a constant supply of moisture, which penetrates the soil in virtue of its permeability; under the influence of a

fine climate and manure, the market gardens established in the midst of this desert are remarkable for the rapidity and the vigor of their vegetation. To avoid great expense, the labor of removing the sand is only undertaken in places where the layer is least thick; and what is removed being heaped up as a mound around the soil which is cleared, a kind of boundary wall is formed, which is not without its use in affording shelter, and which becomes productive itself by the plantations of vines and fig-trees that are made upon it with a view mainly to its consolidation. In the same way in Alsace, in the plains of Haguenau, the soil which was a moving desert of sand, has, in the course of less than forty years, become one of the most fertile under the influence of incessant cultivation; in the same way also it is that in Holland, mountains of sand, which had been accumulated by the winds, have been fixed. This sand, which rests upon a wet bottom, draws up the moisture by capillary attraction, and so becomes fit to support certain vegetables. These downs, which may be said to have come out of the sea, have a constant tendency in many places to encroach upon the cultivated lands. To oppose their progress, the Dutch sow them with the *arundo arenaria*, [Sandwort,] the long and creeping roots of which bind together the moving mass and imprison the particles of sand within a kind of net-work. These masses of sand become fixed in this way; but they remain nearly or altogether unproductive.

It is therefore a problem of the highest importance in many instances to fix permanently masses of sand blown up from the sea, by covering them with productive plantations. This problem was studied and successfully resolved by M. Bremontier, a French engineer, who by sagacity in the choice of means and perseverance in their employment gave a complete and practical solution of the question among the downs of the Gulf of Gascony.

The downs formed by the sand which is thrown up by the ocean between the mouths of the Adour and the Girond, occupy a surface of 75 square leagues and have a mean elevation of from 60 to 70 feet. They form a multitude of hillocks, which appear connected by their bases, the crowns of many of them rising to a height of 160 feet and upwards. Under the influence of the prevailing west winds, these masses of sand move with a mean celerity of about 80 feet per annum, covering forests and villages in their progress. A part of the little town of Mimizan is already invaded, and it has been calculated that in the course of twenty centuries, things proceeding at their present rate, the rich territory of Bordeaux will have completely disappeared. In their progress these moving masses of sand choke up the beds of rivers, and increase the disastrous effects they produce otherwise by causing formidable inundations.

The sands of the Gulf of Gascony, like those of Holland and the low countries, are not altogether without moisture; a very short way below the surface they are moist, and even present a certain degree of cohesion. This, in fact, might have been predicated, for

otherwise the wind which brings them from the sea would have dispersed them in clouds of dust and to great distances; but no such dispersion takes place. Downs advance slowly, at the rate already indicated, and by rolling over, as it were, upon themselves. The sand driven by the wind creeps up on the flanks of the ridges as upon an inclined plane; after having got over the summit of the hillocks already formed, it falls down the opposite slope, and accumulates at the base. The action of the wind is only exerted upon so much of the sand as is rendered loose and moveable by its dryness; but the moist part is exposed, dried, and swept away in its turn; in this way the whole mass of sand which was at first deposited upon the west aspect of the hillocks is carried to the east, where it is in the shelter. By this process, under the influence of a wind which blew steadily for six days, a hillock has been seen to advance towards the interior of the country through a space of 3¼ feet.

The moisture contained in the sand proceeds from the rains, from the surface water that filters through it and displaces the salt water which impregnated it originally. The very slight trace of sea-salt that finally remains it has no unfavorable influence on vegetation.

Once aware of the fact that certain plants throve in the sands of downs, Bremontier saw that they alone were capable of staying their progress and consolidating them. The grand object was to get plants to grow in moving sand, and to protect them from the violent winds which blow off the ocean, until their roots had got firm hold of the soil.

Downs do not bound the ocean like beaches. From the base of the first hillocks to the line which marks the extreme height of spring tides, there is always a level over which the sand sweeps without pausing. It was upon this level space that Bremontier sowed his first belt of pine and furze seeds, sheltering it by means of green branches, fixed by forked pegs to the ground, and in such a way that the wind should have least hold upon them, viz:, by turning the lopped extremities towards the wind. Experience has shown that by proceeding thus, fir and furze seeds not only germinate, but that the young plants grow with such rapidity, that by and by they form a thick belt, a yard and more in height. Success is now certain. The plantation so far advanced, arrests the sand as it comes from the bed of the sea, and forms an effectual barrier to the other belts that are made to succeed it towards the interior. When the trees are five or six years of age, a new plantation is made contiguous to the first and more inland, from 200 to 300 feet in breadth, and so the process is carried on until the summits of the hillocks are gradually attained.

It was by proceeding in this way that Bremontier succeeded in covering the barren sands of the Arrachon basin with useful trees. Begun in 1787, the plantations in 1809 covered a surface of between 9,000 and 10,000 square acres. The success of these plantations surpassed all expectation; in sixteen years the pine trees were from

thirty-five to forty feet in height. Nor was the growth of the furze, of the oak, of the cork, of the willow, less rapid. Bremontier showed for the first time in the annals of human industry, that moveable sands might not only be stayed in their desolating course, but actually rendered productive. Like all other inventors, this benefactor of humanity was soon the object of jealousy among his contemporaries. Doubts were of course entertained at first of the possibility of consolidating the moving sands of downs; and when this was demonstrated, the honor of originality was denied him. The ingenious engineer defended himself with moderation, and demanded an inquiry; in the course of which it was satisfactorily proved that nothing of the same kind had been attempted by others previously to the year 1788. The labors of Bremontier must be regarded as another of those remarkable struggles which the industry of man has successfully waged with the elements. [*Ibid.*

COMPARATIVE VALUE MANURES.

The following statement of experiments lately appeared in the Albion, and has been kindly communicated by the writer for the Cabinet. We need hardly say that it would give us much pleasure, and add to the value of our paper, to hear frequently from our highly valued friend at Sandy Spring.—EDITOR FARMER'S CAB.

Professor Hallowell's Experiments to ascertain the comparative efficacy of various Manures.

All the value which experiments in agriculture can derive from great care in conducting them, and from high character for science and exactness on the part of the experimenter, belongs to the following statement. But the best conducted experiments may lead to disappointment when we attempt to imitate them, without acquaintance with the various circumstances which may have influenced the results in any given case, such as climate, soil, temperature, &c.

The residence of Professor Hallowell, near Sandy Spring, in Montgomery county, Maryland, is in latitude 39° 10' N. The general elevation of the country above the tides of the Potomac is from 400 to 470 feet. The greater elevation, however, has, independent of latitude, a sensible effect, as, at Sandy Spring, grain ripens eight or ten days later than in the vicinity of Washington, at the distance of only twenty miles, and in the same latitude. The soil is, as stated by Mr. H., thin, but from recent experiments, very susceptible of improvement; with well and spring water, the latter very abundant, and as pure, perhaps, as any in the world.

The mean temperature of the region where these experiments have been, and still are in progress, for the twelve seasons of the years 1828–'29–'30 and '31, was 51.63, and combining this mean with that produced by monthly observations made with equal care, during the same period, on perennial springs, the mean temperature at Sandy Spring comes out 52.776 deg. or 52¾ deg. Fahrenheit.

The prevailing timber is oak of various species, hickory of various species, Liriodendron or poplar, red flowering maple, black gum, &c., underwood the most abundant, dogwood.

The face of the country is moderately hilly, or in parts only rolling, and extremely pleasing to the eye, particularly the well improved farms; in brief, it is a section of our country in a high degree capable of improvement, and we may conclude by saying, that a salutary and regenerating spirit has breathed its influence into the minds of its people, which is giving activity and efficacy to the modes adopted for its melioration. That such influence, with the examples of such friends of agriculture, and of all *peaceful* and useful arts, will increase, bringing forth good fruits, more and more abundantly, is our wish and our confident hope.

In conclusion of these hasty remarks, on some of the exterior circumstances under which the experiments were made, we submit, and invite to the following letter, the particular attention of the reader.

Rockland, Eleventh mo. 22d, 1844.

Esteemed Friend,—In compliance with the request contained in thy letter of the 12th inst., I forward a statement of the results of my experiments with different kinds of manures.

Experiment 1.—On the 20th of the fourth month, 1843, I sowed bone-dust, as it is called, on a part of my wheat, at the rate of about six bushels to the acre. The cost of the bones in Baltimore, was forty cents a bushel, and it cost ten cents a bushel to transport them to my farm. The wheat where the bone was put, was not improved by it; but a striking difference was soon perceived in the clover that had been sown among the wheat about three weeks before the bone. In the first crop mowing the past summer, there was amply sufficient, where the bone had been put, above what was on the adjacent parts, to pay for the bone, and all the trouble of putting it on; and the second crop gave me an excellent crop of seed, while on the parts where the bone was not put, there was no seed worth gathering. The seed is not got out yet, but several of my friends who are considered good judges in such matters, thought there would be more seed than would pay for the first cost of the bone.

Experiment 2.—At the same time I sowed bone on my wheat, I sowed some at the rate of six bushels per acre on my oats, which had been put in ten days before, and sowed with clover. There was a great increase in the oats, both in the size of the straw and in the quantity and weight of the grain; and the clover the past season was several times over more abundant where the bone was put than where there was none. There is no question that the first cost of the bone was fully returned in the additional quantity of oats that resulted from its application.

Experiment 3.—On the 2d of the fifth month, 1843, I put a bushel of the bone at the rate of six bushels per acre, on four rows of my corn in the hill, by dropping the corn, then putting the bone on it, and covering both up together. The difference in the appearance

was manifest through the summer. When we gathered the corn, we kept these four rows, and the four rows on the one side, and the four rows on the other, all separate. From the four rows where the bone was put, there were two and three quarter flour barrels full of real good ears, and a half barrel of short corn; while from the four rows on each side, there was a scant flour barrel full of good ears, and three-quarters of a flour barrel of short corn. This gave me more than one and a half flour barrels full of good corn for a bushel of bone, or fifty cents, besides there being more than double the quantity of fodder where the bone was put.

Ezperiment 4.—On the 3d of the tenth month, 1843, I put in my wheat, on one part of which I put 15 bushels of bone per acre, on another part 30 bushels of finely ground charcoal per acre, on another stable manure, on another a coating of wheat straw, and a part was left without anything. The bone and charcoal were sown broadcast, and harrowed in with the wheat. The charcoal did no good whatever, either to the wheat, or the clover that was sown amongst it, the part where the charcoal was, and that where nothing was put, alike not producing as much wheat as was sown on it, and they are now bare of clover, while I had fifteen bushels of wheat per acre, where the bone was put, and a luxuriant growth of clover, a large portion of which headed out, and filled well with seed. The wheat was larger, and the heads better filled, and the clover larger where the bone was put, than where the ground was dressed with stable manure. The wheat straw did *some* good, but comparatively little.

Experiment 5.—On the 26th of the third month, 1844, I put in my oats and clover, dressing the ground, except a small part, with ten bushels of bone to the acre. On one half the ground the bone was harrowed in with the oats, on the other half the bone was sown on the top after the harrowing. The crop of oats was greatly increased where the bone was put, but it was much best on that part where it had been harrowed in. The yield, however, was not so great as last year, which I attribute partly to the dryer season this year.—The clover is far better where the bone had been, than it was on the part left for experiment without anything.

Experiment 6.—On the 24th of the fourth month, 1844, I planted my corn, putting poudrette in the hills at the rate of one and a half barrels per acre, and covering it up with the corn. I left a few rows for experiment without any, which were decidedly inferior to the others in the number and size of the ears, and the size of the stalks. Also, that which had been dressed with poudrette, ripened considerably earlier—I should think at least ten days. The beneficial effects of the poudrette were much the most remarkable on the part of the field where the land was poorest—indeed, on a small part where the ground was very good, I was scarcely able, at pulling time, to see any difference.

Experiment 7.—On the 19th of the ninth month, 1844, I put in my wheat, four contiguous acres of which were manured as follows

viz :—one with 200 lbs. of guano, finely pulverized, and mixed the previous day with about an equal bulk of plaster of paris; another with 16 bushels of bone; a third with four barrels of poudrette, and the fourth with a mixture of all these, and a small part was left without anything. The manures were all harrowed in with the wheat. The rest of my wheat ground was dressed with bone. The cost of the manure on each of these four experiment acres was the same, viz. $8 per acre. A marked difference is visible at this time in favor of that which was dressed with guano and plaster, and it all looks much better than that which was left without manure. The guano was obtained of Samuel R. George, of Baltimore, at $3 per 100 lbs. I mixed it with plaster, to remove a part of its acrid quality that might injure the young germ, and also to condense the volatile portions and render the sowing of it less unpleasant. It cost me 30 cents per 100 lbs. to get the guano hauled from Baltimore, 28 miles. The poudrette got of J. Tatum, cost $1 50 per barrel in Philadelphia, and 50 cents a barrel to get it here by the way of the District of Columbia. At my farm the bone stands me in 50 cents a bushel, guano $3 30 per 100 lbs; poudrette $2 per barrel, and plaster $1 30 per barrel. The benifit of plaster, as far as I have tried it, is very small indeed, if any. My land is, however, very poor, mostly a stiff clay, full of white flint stone. Yet it seems very susceptible of improvement, and I am in hopes that when I shall get it a little more improved, the effects of plaster will be more manifest. I have made no experiment till the present fall, to determine the comparative value of bone and guano. My impression is, however, that while the effects of guano may be more striking in the first crop, bone will be more lasting. The experiments with guano and bone, as given in several agricultural publications, are by no means satisfactory to me, because they give a statement of the produce of only the first crop after the application of the manures, where guano, from being in a state more ready to be immediately assimilated in the growing vegetable, would possess a decided advantage over bone, which is in a coarse state principally. The different crops from the time the manures are applied till the ground is broken up again, and the condition and quality of the ground when then broken up, should all be taken into account in making up the estimate of the comparative value of different manures. It is to this end that I am instituting my experiments. I may state, in conclusion, that I have no doubt the effects of bone dust and guano, are much more striking upon old worn out lands, such as these to which I have applied them, than they would be to those that are richer. Indeed it is reasonable that lands which have been long cropped, without having had anything returned to them, must eventually become deprived of phosphate of lime and other inorganic materials, which, existing in but small quantities in soils, are yet indispensably necessary to the growth of grains and nutritious vegetables. And although such soils may contain every other ingredient necessary to vegetable growth, yet wanting the phosphate of lime, grains, clover, &c.,

which contain this, could not grow till it is applied in bone dust or something of the kind. So of other inorganic elements which enter into the vegetable economy.

It would give me great pleasure indeed, to have an opportunity of *showing* thee my experiments, and of going with thee to see my cousin and neighbor Roger Brooke, to whom I read thy letter last evening, and who expressed an earnest wish that thou might find time to carry out thy intention as therein expressed.

Thy sincere friend, BENJAMIN HALLOWELL.

To JOHN S. SKINNER. [*Farmer's Cabinet.*

FENCING.

The period has not yet arrived when the absolute want of timber forces a general resort to some substitute for fencing. In some parts of the State, however, the timber is gone, and plank is purchased and used. In others it is becoming scarce, and great economy is required, while every body knows that the time will come when rail fences will be no more. The common feeling, however, is to let the future take care of itself. Sheer necessity alone can introduce any improvement in anything connected with our agriculture. The Planter belongs to the genus Terrapin, and can be seldom made to move until the fire is felt on his back. I never therefore, undertake to recommend anything to Planters for their benefit *in futuro*, unless it has also the strongest claims to attention *in presenti*.

I imagine that few persons have ever undertaken to count up the cost of the fencing in this State and compare it with the benefit derived. There are probably 250,000 white persons in South-Carolina engaged in Agriculture, making, at the usual average of five to each, 50,000 families, owning each one or more plantations or farms. I should think there were nearer 100,000 than 50,000 settlements in the State. The length of fencing on these places varies. Few or none, however, have less than half a mile, while I know some whose fences are in all over thirty miles in length. The average length cannot be less than two miles to each family, or 100,000 miles in the whole State. This is a moderate estimate I believe. Now it requires between eight and nine thousand rails to make a *good fence* of one mile. These rails are worth on an average one dollar a hundred, put up. But allowing for fences not good, and rails put up at a cheaper rate, we may safely estimate the value of every mile of fence at $50. At this rate the whole fencing in South-Carolina is worth $5,000,000. If any one should think this a high estimate let him reflect on all the items, and also remember that I have not taken into consideration the plank fences. There are many thousands of miles of such fencing in the State, out of the towns, and it costs at the very least $200 a mile—often twice as much.

Now the interest on this investment of $5,000,000 in fences, I regard as equal to $1,000,000 or 20 per cent. per annum. The legal

rate of interest is 7 per cent. But there is a sinking of capital in fences equal to at least 13 per cent. per annum. At the end of five years, rail fences generally require three or four new rails, and the same every other year thereafter, forever. Thus the duration of a fence does not average more than seven years, or at most seven and a half, and the annual decay is fully 13 per cent.

Now, for what purpose do we make this dead investment of $5,000,000, and incur this annual loss of $1,000,000. For none other than to keep cattle, hogs and sheep out of our fields. Mules and horses we usually keep out by enclosing them. The question then is, whether it would not be cheaper, and in every way better, to enclose the cattle, hogs, and sheep, also? It may be that the animals we guard against are worth more than our fences, but I am inclined to doubt it. I keep a large stock, and raise an abundance of pork and beef for my wants; and though I have scarcely a cross fence on my land, my fences have cost me more than I could sell my stock for. Let every planter make the calculation for himself. Be that as it may, it is far more doubtful whether the interest yielded by the stock is equal to that lost on the fencing. Let every one calculate here again. The result of these calculations might not satisfy all of the advantage of keeping stock enclosed, in preference to enclosing our fields, if the mere expense of making and repairing fences would of itself, raise and fatten our meat. But what is the actual benefit that we derive, after all, from fencing? The benefit of the *range* for our stock. And what do we gain by that? Razor-back hogs and sway-back cattle, and sheep that dogs will hardly eat after killing. I was going to say, that the sole advantage of our ranges was, that it kept our stock alive and breathing for two-thirds of the year. But it does not do that. Of one hundred hogs turned into the range *without feed*, how many would come into the pen for pork? I am always rejoiced to get back three fourths, after all the feeding and attention I can bestow. I do not think it would be hard to show that this range, which is all we get for our annual outlay of $1,000,000, is in most parts of the State rather a disadvantage than an advantage. I have always thought I had as good a range as any in the State for my stock, in every point of view; yet after much reflection, calculation and sufficient *experiment*, I have gradually brought a large portion of the stock into lots and pens, and shall soon have all enclosed. I do not believe there is an individual in the State who would not profit by the system, if he had, nevertheless, as I have, to keep up all his fences against his neighbors. His profits would of course be vastly increased, if he could dispense with his fencing. Has any one ever accurately counted the cost of fattening a hog taken from the range? I have done it, and have known others to do it. It very rarely happens that the corn he eats would not buy more pork than he will turn out. Let our hog-breeders try this generally next year. But we usually give them the run of the pea-field, which saves corn in fattening, it will be said. Let it be considered whether more time is not required to repair fences an-

nually, than would be taken up in gathering the peas the hog will eat, or in making so much more corn. Besides, many hogs die of eating peas; and when fat and wild in the pea-field, so that they cannot be regularly called up to be counted, how many are always lost by theft? As to cattle, I admit that if we enclose them we must diminish the numbers some keep, especially in the low-country. But of what use to us are our herds of lean kine, that give us little milk, butter or beef? One well-bred and well-fed cow or steer, is worth as much, and in the market will bring as much, as ten of them. So of sheep. When, however, large gangs of either are kept, they must have shepherds, and these can keep them from fields even were there no fences. COKE.

[*So. Carolinian, (Columbia.)*

THE YELLOWS IN PEACH TREES.

About the year 1795, peach trees, in the neighborhood of Philadelphia, began to die without any apparent cause. Soon after, they began to perish in like manner more and more remotely from the city. By 1810, few peach trees were alive in the State of New-Jersey. They began to die around New-York about 1801, and in the State of Connecticut about 1815.

The unknown cause of this strange death of trees—before considered as hardy as other fruit trees, has been termed the "*Yellows,*" and has been called a disease, in analogy to those epidemics which at times lay waste human life. It is, perhaps, the first and only instance of any affection in the vegetable kingdom, that can be called with propriety, *disease.* It has all the appearance of being constitutional, bearing no resemblance to the decline and decay caused by bad soil, unsuitable temperature, or local injuries.

Hitherto, all efforts to discover the cause of this fatal malady have been made without success. What produces the "yellows," is as much unknown as what produces the cholera. One circumstance has doubtless prevented a very general and thorough search for the cause of the yellows. Everywhere we have occasionally seen an insect (*Ægeria excitiosa,*) that eats into the bark of peach trees, near the surface of the ground. Whenever a person discovers this insect at work, he imputes the death of his trees to that. Most people stop here, merely looking about for some mode of keeping out or destroying the peach worm.

Now, the effects of the yellows are as different from those of the boring of the peach worm, as the small-pox is different from the cut of a knife.

If every body could be made aware of this difference, research would be universally awakened, and receive a direction that might lead to the most valuable results. A great step will be gained if cultivators would understand what is meant by the term "*yellows,*"

For this reason I deem it of great importance to present in the Cultivator, a clear, unmistakable description of this fatal disease.

There are two marks or symptoms by which the presence of the disease is indicated. One is, the shooting out from the body or limbs of the tree, very small, slender shoots, about the size of a hen's quill. The leaves upon these shoots are commonly destitute of green color, as if blanched, or as if grown in a dark cellar; and, like the shoots that bear them, are of diminutive growth—rarely exceeding an inch in length. These shoots do not usually start from the common, visible buds at the points where the leaves join the stem, but from unseen latent buds in the bark of the trunk or large branches.

The other symptom is the ripening of the fruit two to four weeks before its natural season of maturity. Most generally, also, the fruit, whatever be its natural color, is more or less spotted with purplish red specks. If shoots, such as above described, appear upon a tree, or without them, if the fruit upon any part of it (not wormy,) ripens before the proper time, it may be certainly known that the tree has the yellows.

These are not the only marks or symptoms of the disease, but they are those which are the most readily discovered. The ordinary leaves of the tree, or at least those upon the diseased portion of it, commonly undergo a slight change of color. Instead of a bright glossy green, they assume a dull, yellowish tinge. The wood, also, when the disease is considerably advanced, becomes unelastic, so that its branches, when moved by the wind, instead of the graceful waving of health, have a stiff, jerking motion. These two last mentioned symptoms will not readily be seen, but by a practised eye.

What I have further to say concerning this disease, may most conveniently be stated in separate sections.

Sec. 1. The slender shoots, spoken of above, do not appear to ripen their wood perfectly. They continue in a great degree herbaceous till frost comes. For this reason, or because no buds are formed on them, they perish the succeeding winter.

Sec. 2. The fruit may exhibit marks of disease, when the other symptom (slender shoots) is not discoverable. But, on the other hand, I have never seen the slender shoots on any part of the tree, without the fruit (if there was any) being affected.

Sec. 3. The fruit, the first season of attack, usually grows to its proper size. The second season, it is uniformly small—not more than a half or a quarter of its proper size.

Sec. 4. Whatever be the natural color of the fruit, it is more or less, when diseased, colored with purplish red; generally in specks or coarse dots. The flesh, quite to the stone, is often colored, and most deeply around the stone. By the colored specks, a person may easily distinguish by the eye diseased from healthy fruit, as it is offered in market.

Sec. 5. The taste of diseased fruit cannot be exactly described, for want of appropriate words. The word insipid almost describes

it. There is an absence of all agreeable flavor, and there is not much that is disagreeable. A few sorts retain, in spite of disease, some of their exquisite peach flavor.

Sec. 6. In the first summer of disease, it is not always that the whole tree appears affected. The slender shoots may show themselves on one branch only, the rest of the tree having every appearance of health. In like manner, the fruit upon one branch may ripen four weeks too soon, upon another two weeks too soon, and upon the rest of the tree, at the natural time. The second season, all the fruit will ripen three or four weeks too soon.

Sec. 7. The tree sometimes dies the next year after the appearance of the disease, and sometimes lingers along with a feeble life for two or three years. Sooner or later, however, it is overcome by the disease. I have never known, nor have I heard authentically, of any tree recovering from it.

Sec. 8. Soil, whether of clay or sand, whether moist or dry, whether cultivated or in grass, manured or unmanured, does not appear to me, clearly, either to increase or diminish the liability to disease.

Sec. 9. Trees standing in exposed and sheltered situations, walled and in open ground, on hills and in valleys, seem alike and equally liable to the yellows.

Sec. 10. Trees standing in places where people are passing to and fro very often near them, though not exempt from the disease, appear less liable to it than others. This is strikingly exemplified in the city of New-Haven, where trees standing close by the sidewalks, outlive all others. The same fact I have observed upon my own premises.

Sec. 11. Luxuriant and vigorous growth is no protection against the disease. Trees have grown five feet in the same season when they have shown the marks of the yellows. On the contrary, slow growth is, perhaps, (I cannot speak confidently,) favorable to health. On this point I give the following fact: five years ago this fall, I dug a hole in my meadow, a foot square and eighteen inches deep, threw back the earth and planted a peach stone. It came up the next spring, and has grown very slowly. It is now only forty-five inches high, but perfectly healthy; while every other tree planted at the same time in my garden, a few rods off, grew vigorously, bore fruit, took the yellows, and have been dug up.

Sec. 12. When the disease commences in a garden or orchard containing a considerable number of trees, it does not attack all at once. It breaks out in patches, which are progressively enlarged, till eventually all the trees become victims to the malady. Thus in an orchard of two and a half acres, all the trees were healthy in 1827. The next year two trees on the west side of the orchard, within a rod of each other, took the yellows. In 1829, six trees on the east side of the orchard were attacked, five of them standing within a circle of four rods diameter. In 1830, fifteen more were attacked, fourteen stood within a circle of four rods diameter. A similar fact is now apparent in my neighborhood. A fine lot of two hundred young

trees, last year in perfect health, now show disease in two spots, near the opposite ends of the lot; having exactly six diseased trees in each patch, contiguous to each other, while all the other trees are free from any marks of disease.

Sec. 13. Young trees, even in the first summer of their growth, and before they have blossomed, sometimes take the yellows. For this reason, many suppose this disease to be hereditary. Upon this point my observation has not furnished me with facts that seem conclusive. Young trees from a diseased parent, do indeed, take the yellows; so do those from a healthy parent, and one, as appears to me, is as liable to do so as the other. At present, it may be best to consider this point not settled.

Sec. 14. Whether the disease is communicated from tree to tree through the medium of the blossoms, as is believed by many, is also an unsettled point. I have not known a case where such a communication of disease was clearly proved. On the contrary, there is some negative evidence that throws a doubt upon the correctness of the supposition. I took a blossom from a diseased tree and applied the dust (pollen) to the blossom of a young tree in my garden. The tree thus exposed to infection, showed no mark of disease, either in that or the succeeding year.

Sec. 15. If a bud from a diseased tree is inoculated into a healthy stock, whether peach, apricot, or almond, the stock will become diseased and die. As this is a fact of some importance, I will furnish some evidence of it. I took some buds from a tree having symptoms of the yellows, and inserted them into peach, apricot and almond stocks. Some of the inoculations took well, but all showed marks of disease the next season. The peach and almond stocks, with their buds, died the second winter after inoculation. One apricot stock lived five years, but its peach top grew in that time to be only three feet high. Further proof is furnished by a communication to the "New-York Farmer," some years ago, from David Thomas, of Western New-York: "In 1823 I procured," he says, "a box of peach trees from the neighborhood of New-York. I observed some of them to be of feeble growth, and fearful of losing kinds so rare and so high priced, I budded some into a most thirfty stock in the nursery, and some into thirfty trees in my peach orchard. On the young stock, two buds took, but never sprouted; and in less than a year it dwindled like the tree whence the buds were taken, and died. Every tree in my peach orchard so budded, has been long since dead, and no other peach trees have died in that orchard."

Sec. 16. In an orchard or garden containing both young and old trees, the young trees will generally be diseased first, the old trees last.

Sec. 17. From the very limited opportunity I have had to compare the liability to disease of different varieties of peaches, I incline to the opinion that the Connecticut Red Rareripe and the Early Ann are the last to take the yellows.

Sec. 18. Peach trees budded on apricots, plums and sweet almonds, are liable to the yellows.

Sec. 19. Plum trees are not subject to any disease analogous to the yellows. But the apricot, standing in the neighborhood of diseased peach trees, is subject to a sudden decline, ending in death, which I can trace to no visible cause. The growth of the branches become feeble; manuring, digging, pruning, all have no effect upon the vigor of the tree. Nothing will save it. Nectarines are subject to the disease, and show it in the same manner as the peach.

Sec. 20. The following fact gives reason to believe that the disease commences in a tree between the month of September and July following. In the month of September, I took buds from a tree apparently in full health. The buds, inserted into young stocks grew thriftily and without disease, for three years. But the tree from which they were taken, showed marks of disease in July following the time they were taken.

Sec. 21. There is no connexion that I have been able to discover between the yellows and the curled leaf, except that the leaves of trees, much diseased by the yellows, do not curl.

Hitherto, no means of warding off or curing the yellows have come to my knowledge. Most of the applications for the cure of the disease, have been made on the supposition, that it was caused by the peach worm—such as ashes, scalding water, charcoal, lime, salt, saltpetre, fish oil, and urine. All of them have more or less agency in excluding the borer, but are not all effectual even for that purpose. Some of them have seemed to promote for a time the growth of the trees, and to give a deeper green to their leaves; but none, that I have ever observed, have at all checked the progress of the yellows. I have tried some applications to the bark of diseased trees, such as diluted oil of vitriol, aqua fortis, strong lye of potash, and chloride of lime—not much expecting success; for it is probable trees absorb nothing through the bark. But until we know, as we never shall know, all the processes of nature, we cannot know beforehand what is to be the effect of any application to a living plant. Since the discovery of the means of infusing into living wood various substances calculated to preserve it from decay, or to give it desirable colors, by placing solutions of them in contact with the sap vessels, which are cut across, it may lead to a useful discovery, if diseased peach trees should be made to absorb a variety of matters. Some one may be found that will modify or change the diseased action of the tree—decompose the poison, if there be any. It is my intention, next summer, to institute a series of experiments upon this plan, if I can find a sufficient number of subjects to operate upon.

NOYES DARLING.

New-Haven, Connecticut, Dec. 1844.

[*Albany Cultivator.*

CEMENT AND WHITEWASH.

[Read before the Farmer's Club.]

Quick lime, or lime deprived of its carbonic acid gas, and water of crystalization by heat, does not readily recrystalize when not in immediate contact with other crystaline substances, of which clean silicious sand appears to be the best, but if it is left a sufficient length of time after being calcined to become saturated with a return of the carbonic acid gas and water, from the water and also from the atmosphere, it will gradually harden to the solidity of chalk, of which nature's laboratory has produced an abundance, and time has not effected any greater result, for but a short time hence it may be readily perceived that when quick lime has been with air or water slaked for a period sufficient to have become carbonized to any considerable amount, it is no longer capable of making a durable cement, and time seems to produce but a small effect in its cementing properties as may readily be perceived by examining the mortar in any of the old buildings, that are continually taken down in this city. I have examined the mortar in a great many of them, and have never found any that had become hard that was made from the bulk lime, or was slacked before it was brought to market, and the lumps of dry lime found unmixed with the sand, would pulverize between the fingers like a lump of dry flour, and the small particles of lime when in contact with the sand, after being detached, would be found but a little better; to produce a good cement, that will continue to grow harder by time, the lime should be used after being calcined, the sooner the better, if while being slacked and in a fluid state, clean, sharp sand should be well incorporated with it, in the proportion of from one of lime to five or six of sand and applied to immediate use, the cement will continue to harden for ages to come, as may be seen by examining any of the mortar from the remains of the ancient ruins of the old world, hence the frequent observation that the ancients made their mortar in a better manner, or from better materials than the moderns; but should the lime become partially carbonized, or what is commonly termed air slacked, or should it be incorporated with common earth or earthy sand, the above result could not be expected, as lime will not crystalize on a soft substance. The same beneficial effects may be obtained for a lime wash for out buildings, stone walls, fences, &c., by slacking quick lime to a fluid state, and stirring in clean sand with a small quantity of sifted wood ashes, and a little rock salt to hasten the crystalization, and applied to immediate use with a whitewash or paint brush, will last for years; no paint can be made to last so long. There are specimens on this island of wash put on in the manner above described, of more than twenty years standing, and which appears to be nearly as fresh and fair as when first applied. I remain with the most sincere respect,

Your most obd't serv't.

HENRY MEIGS, Esq. VITRUVIUS.

New-York, April 11th, 1845. [*Farmer and Mechanic.*

ELECTRICITY IN AGRICULTURE.

The Tring Agricultural Association, held their fourth annual meeting on Friday.

Mr. Gordon described a new method of increasing the fertility of the land, by electricity.

In Morayshire he met with a gentlemen who communicated to him many agricultural facts, and informed him that he had recently seen, on the farm of Findrassie, a plat of land which seemed to bear barley and clover as if they were growing on a dung-hill; and that that effect was produced by singular means, but easily to be comprehended by persons versed in science. Perhaps, when he mentioned it, they would call him a wire-worm; and perhaps they would be astonished if he told them that the most successful agriculturists might be the poachers; for who would deny that they well knew how to lay down wires? He came among them armed only with a pole or poles eleven feet long, a coil of common wire and a compass; and with these weapons he trusted he should, in a few minutes, convince them that he could wield an agricultural power not to be despised. But to proceed. He wrote to the proprietor of the farm at Findrassie, near Eglin, (Dr. Forster—not Faustus,) to open, with a lecture on the subject, a large room which he had built for agricultural purposes in the county of Aberdeen. Dr. Forster, however, was not able to do so; but, with a practical liberality which marked him a true agriculturist, he was kind enough to write an account of the subject, which was the novel and surprising one of the influence of electricity and galvanism on the growth of plants, as applicable to agriculture. Many years since, Mr. Forster read in the Gardener's Gazette, the account of an experiment made by a lady, which mainly consisted in a constant flow or supply of electricity—to be afforded by a common electrical machine—to proceed from a summer or garden-house, and which was diffused by wire, to a fixed portion of the surrounding ground; and the effect was, that vegetation did not cease in the winter on the spot under the influence of this wonderful power; and that what snow fell during the continuance of the experiment it never remained, as it did on the rest of the garden around. This impressed Mr. Forster very much, and induced him to place a small galvanic battery in action on a grass-plot; and although the power from it was very small, still the effect produced fully confirmed the lady's experiment.—This, and other facts which Mr. Forster collected, led him to think that the electricity of the atmosphere—a constant current of which was found to proceed from east to west over the whole of this earth's surface—might, by some arrangement, be usefully employed in agriculture; for Mr. Crosse, of Taunton, had long since proved that the free electricity of the air might be easily collected by wire suspended on poles of wood, at many feet from the earth's surface—the

direction of the wire being due north and south by the compass; and many very interesting and important facts and experiments had been recorded by Mr. Crosse, and many collected from a careful observance of the electricity proceeding from the suspended wire.

Mr. Forster next placed two poles four feet high in his front lawn, which had been recently laid down with chevalier barley and grass, after draining and sub-ploughing it; and over those poles which were due north and south of each other, he stretched a common piece of iron wire, fixing the two ends of it to stout wooden pins, driven in close to the earth; and on the edges of the plot of eight English poles, and around the edge, which were straight lines, he sunk, about two or three inches beneath the earth, two wires of equal length, the ends of which were fixed and in contact with the two ends of the suspended wire, which were meant not to be too tight, for its contraction in cold nights, would break it in two, or pull away the fixtures, and thus defeat the object. Mr. Forster formed two of these plots for experiment, measuring eight square poles each, and then proceeded to criticise his work; and to do so accurately, sought the aid of "Noad's Popular Lectures on Electricity and Galvanism;" and almost the first half hour's perusal showed him, that there was such an error in one part of his plan as would effectually defeat his intentions. This was, that the point of a blade of grass or young corn-plant has the most extraordinary faculty or power of attracting or appropriating to itself, all the free electricity present, at four times the distance that the finest point of metal would or could; so that, when the points of the barley plants should reach one foot high, all the electricity that the suspended wire might before that have collected and conveyed through the buried wire to the roots of the plants, would be abstracted by the points of the barley; and thus the suspended wire, getting nothing from the air, could not of course supply anything; by which all the induced electrical influence would cease.

Mr. Forster, therefore, next day placed poles eleven feet high above the surface, with wires, &c., exactly the same, except that the space surrounded by the buried wire was twenty-four poles, English measure. All the results are yet imperfectly known; but these were evident: the barley plants on the two smaller plots—of eight poles each—soon became darker in color, and grew faster till they had attained to about a foot in height; the darker green color then gradually disappeared; and, at the end of a fortnight after, there was no perceptible difference, but in the height of the young barley plants; and even this ceased to be very apparent as the crop advanced. When the barley of the larger, or twenty-four pole plot was six inches high, it assumed the same lively dark green, and grew faster than the surrounding unelectrified barley-plant; and this difference it maintained up to the last—except that the color, of course in time became yellow; and it was curious that this change occurred later than in the rest of the crop. The number of stocks or shocks was also greater, and each larger when reaped; the ears from one

grain of seed were more numerous and longer; the corn, also, was larger and harder.

To make assurance doubly sure, Mr. Forster fixed to the short four feet poles of one of the smaller plots, pieces of dry pine wood eight feet high, and suspended two wires to them—one at that elevation, and another a foot lower down—and was pleased to find that, after some time, this plot partially resumed its former darker green colour. The experiment has also been tried at Liverpool, with great success, on potatoes; the crops being much larger than on the other parts of the land. It was the opinion of those scientific persons of whom he had inquired, that even Professor Liebig was not aware of the application to agriculture of this discovery.—It seemed, then, that the meeting was now in possession of valuable details, which were known to very few persons in the whole country. He hoped some gentleman would try the experiments, and write upon the subject; for he had written to the Royal Agricultural Society to offer £30 for the best prize essay on galvinism and electricity, as applicable to agriculture. [*London Spectator.*

TANNING ON THE PLANTATION.

Mr. Camak:—I see in your last Cultivator directions for *plantation tanning*, by Mr. Affleck of Mississippi Having tanned my hides for a number of years, and believing it to my interest, I suppose it will be profitable to others who have many raw hides.

I have succeeded well, and think my leather firmer and more valuable for negro shoes, and the coarse harness on my farm, than tan-yard leather; and as my plan is a much cheaper one than Mr. Affleck's, and as economy is my hobby horse, I just thought I would ride him out this morning to keep him healthy.

I tan from ten to fifteen hides a year, of various sizes. I have two vats five by seven feet, four feet deep, sunk in the ground near a falling branch, so constructed at the bottom that I can draw a plug and wash and empty them. I begin in March; soak my hides ten days in running water. Two or three times I take them out and give them a good rubbing or washing. They are then ready for the lime, as we call it. I then put them in one of my vats, and divide equally among them from 3½ to 5 bushels of good ashes, and two or three quarts of lime, and cover the whole in water. The lye had better be strong, and if you err, err on that side. Every few days I take them up, or rather stir them up, and mix them again, so that all parts shall be equally acted on by the lye and the atmosphere, in the top and the bottom of the vat. If your ley is right, in ten or twelve days your hides will be thickened to two or three times their first thickness—feel more like a sheet of jelly than any thing else, and the hair will slip easily. Then slip off the hair, and with a drawing knife or a currying knife, scrape off the loose flesh and cellular matter on the other side, and as much of the lye as you can, without

bruising the hide: and then put them back into fresh and clean water. Every other day take them up and give them a good rubbing or scouring, for ten days. They are then ready for the bark; and by that time you can slip the bark off your oak trees and have it ready for the hides. I never grind my bark. I take it from the tree, and with a drawing knife, take off the rough on the outside, and just beat it enough to cause it to lie flat in the vat. In my other vat I do all my tanning, and commence with a layer of bark, then of leather, and so on; and so lay it in the vat that every part of each side of the leather shall lie against bark; and when I am done, I immerse this entirely in water.

The first year you had better boil an ooze in kettles or pots, and use that instead of water, and afterwards always preserve your old ooze to use next year instead of water. I let this lie until the first of August, and put in a second bark precisely as the first, and let it lie until sometime in October or November, when my leather is fully tanned, if these directions have been followed. When the leather is well tanned, it presents a yellow, spongy appearance, through and through; otherwise, you will see a white or hard streak in the centre. When I take it up I scour the ooze well out of all. That I intend for sole leather, I straighten and dry; that for upper leather, I wash well, then grease well with the cheapest oil I have, and after drying eight or ten days, I moisten it, curry off the spongy, soft part from the flesh side; and when moist, beat it or break it over some rough surface until it is comparatively soft, and the grain side is all puckered up, or wrinkled into small wrinkles. Then, when my leather is thoroughly dried and shrunk, it is fit for use.

Respectfully, J. S. WHITTEN.

Mount Zion, May 1345. [*Southern Cultivator.*

FINE FLOCKS OF SHEEP IN THE VICINITY OF COLUMBIA, SOUTH CAROLINA.

The practical Agriculturist and genuine lover of rural affairs, would be both gratified and amply repaid by visiting the magnificent flocks of Sheep, belonging to Col. Wade Hampton, and Mr. B. F. Taylor, in the neighborhood of this city. Those who wish to be convinced of the fact that we can successfully raise fine sheep in our Southern climate, should go by all means. Examples like these are worth more than a heaped up mountain of arguments, theoretically prepared by those who take interest in advocating such things through the medium of the Agricultural Journals. The flock of Col. Hampton is superior to any other we have ever seen in any part of the United States. They are pure blooded Liecesters, and Bakewell himself were he living, would be proud to own them. They cannot have lost much, if anything, of their characteristic superiority, if we judge by some of his animals which have matured. Mr. Taylor's flock is chiefly Merino with a dash of the blood of the

African or broad-tailed sheep, and they have shown themselves to be extremely fine and prolific. He recently showed us the fleece of a buck lamb fourteen months old, which weighed 10½ pounds. Dr. Parker, the Superintendant of the Lunatic Asylum in this city, has just shorn a pair of last spring's Liecester lambs, about fourteen months old, bred by Col. Hampton, and the weight of the fleece from the buck lamb was 13½ pounds, whilst that from the ewe lamb weighed 11½ pounds.

Col. Hampton has shorn all his lambs of the present season, and we will make the wool growers of the North open their eyes, when we state that the average weight of the fleece of about sixty head, was four pounds each. He has done this in order to relieve them from the oppressive heat of summer.

On visiting his flock a few days since, we found them in fine condition, without the least appearance of disease of any kind amongst them, and what is remarkable, they have kept in good order on very short pasturage, which is one of the best evidences we can give of the thrift of this remarkable breed of sheep.

With such flattering results before us, why should we despair of making a great portion of our State profitable in this branch of rural enterprise. We have already adverted to the superior advantages of our mountain regions as sheep walks, and we shall on some other occasion, gather information and give our own views upon the propriety of introducing good breeds of sheep in the middle sections and lower-country of South-Carolina. That the whole sandhill region bordering on our extensive swamps is eminently adapted to this business, has been fully proven by the success of the flocks above mentioned.

We should like to see such flocks obtain throughout the State, and we fancy the gentlemen above named, would do all in their power to gratify such individuals as might desire to make the experiment, by furnishing them superior stock animals, at a moderate rate, when their prices are compared with the heavy and hazardous expenses of importing them immediately from England or the North.

John Randolph said he would walk a hundred yards out of his way, merely to kick a sheep. We would go a journey of fifty miles to admire a good flock. He might have been wise in his aversion to these animals. We know we are wiser in our great fancy for them.

[*Columbia South-Carolinian.*

TO DESTROY INSECTS ON PLANTS.

Tie up some flour of sulphur in a piece of muslin or fine linen, and with this the leaves of young shoots of plants should be dusted; or it may be thrown on them by means of a common swansdown puff, or even by a dredging-box. [*Peterson's Magazine.*

HOW TO RAISE TURKEYS.

The attention of our readers has been repeatedly called to the subject of raising poultry; in the vicinity of our large cities, perhaps no stock is so profitable. Some good practical hints may be taken from the following, which the editor of the New-Jersey Journal gives as the result of considerable experience of his own. The young turkey is proverbially a tender chick, and it is a nice matter to know how to manage him properly.—ED. FAR. CAB.

We believe it is common among farmers to say that a turkey's head costs twice as much as its body is worth when fattened. This we do not believe to be true, if he is properly managed; but on the contrary, we believe that nothing can be raised and turned to so great a profit. But turkeys must have care, especially when young; but this care will not entrench on the business of the farmer, as it may be done by females or the younger branches of the family,—and beside, the little damage they may do to grass, or other things, must not be magnified tenfold, as is usually the case. But by proper attention they will do no damage at all.

Before giving our rules to be observed in raising turkeys, let us draw a comparison. There are but few farmers but can raise 100 turkeys,—these 100 turkeys will weigh, when fattened, in December, upon an average, seven and a half pounds each, full dressed. We say *full dressed*, for it is the practice in some places to divest the turkey of nothing but its head and feathers, and then take it to market. A practice as uncivilized as it is disgusting. These hundred turkeys then will weigh 750 lbs., which in market are equal to 1,500 lbs. of pork. But if the male turkeys are kept until February or March, they will not only increase in weight, twice the amount of their feed, but the price in market will be much higher.

We will now give the rules to be observed in raising and fattening them, founded wholly on our experience. Turkeys intended for breeders, must be kept well during the winter. If put in good condition, however, in December, it takes but little feed to keep them so. Their nest for laying must be made with hay or oat straw under cover, and be well protected from the weather, and from vermin. When incubation commences, the turkey must not be disturbed, and if she does not come from her nest for food and water, she must have both placed by her on her nest. When the young turkeys are hatched, they may be allowed to remain one day on the nest, or if removed let them be sheltered in a warm place, and plenty of straw for them to set upon, for they are now extremely liable to take cold. The second day feed them with curds, or warm clabbered milk mixed with a little Indian or barley meal. They must be kept up and fed in this way for two or three days, and longer if the weather should be cold or rainy, but as soon as a warm and pleasant day comes, let them out at nine or ten o'clock, and shut them up at four; and this practice of letting them out and shutting up *must* be followed for five or six weeks, and on no account let them get wet. When a young turkey begins to droop there is but

little hope for it. There is no danger of keeping them too warm. When they are five or six weeks old, put a little grease on their heads to preserve them from lice.

At the age of six or eight weeks, the turkey is more hardy, but still should not be exposed to rains or the damp nights, for a few weeks longer. If the farmer has a plot of grass let him enclose a yard with a high fence, and crop the wings of the old turkeys, and continue to feed them with clabbered milk, and whatever else he pleases that comes from the kitchen, such as broken bread, potatoes and the like. If he has a clover field, as soon as it is mown, let them run on it, and they will live on young clover. And as soon as the crops are off the ground, say in August or September, let them range on the farm; but see to it, that they come to their roosting place at night, and have water.

In December, the turkeys will be large enough to fatten, and for this purpose select as many as you please, and shut them up,—next take to the mill a few bushels of *ears* of Indian corn and have it ground—then boil potatoes, and mix the meal with the scalding water and potatoes in a tub, say in the proportion of one bushel potatoes to one peck or more of meal, and stir them well together, then let it cool, but give it to the turkeys as warm as they will bear it, and as much as they will eat, and in two weeks and a half, they will be fat enough for market, and for an alderman's dinner.

We do not take this from books, but from several years' experience. We kept an exact account of the expense of raising and fattening a flock, and at the rate of ten cents a pound full dressed—we received $72, while our cost exclusive of sour milk, was less than $10. If any farmer does not wish to be at the *special* trouble of raising them, but should have a small flock to fatten, that have lived "in spite of wind and weather," let him adopt our rules of fattening, and he will "save much corn." On a large farm, and with a large yard and a butter dairy, with proper attention, we believe it may be made a leading business to great profit.

ADULTERATED MILK.

The inhabitants of large cities are constantly complaining, and with very good reason, that the article sold to them under the name of milk, is systematically adulterated. The udder of the cow supplies merely the basis of the compound; water, and certain foreign substances to give it the requisite whiteness, forming the other ingredients. The colouring matter is made from things of which the public at large have very little notion. The prevailing belief regarding the London milk manufacturer is, that chalk is their favorite pigment. Their brethren of Paris, however, employ a more extensive range of adulterating substances—such as flour, plaster of paris, calves' lights, and a still more extraordinary animal substance, namely dog's brains.

This system of adulteration is the more abominable, when we consider that, of all species of food proper for the support of human life, milk is the most useful. It is unlike any other aliment in this respect—that it has the power of sustaining life without the assistance of any other sort of sustenance. Though man cannot live by bread alone, yet nature can be fully sustained by milk, were he reduced to have nothing else to sustain him. Its consumption, therefore, is very great in every part of the world, except in China, where it is never used as a beverage. It has been computed that the average consumption of milk in Paris, during the year 1837, was about 15,000 gallons per day. What the daily consumption of London may be, is not to be ascertained. If we reckon it in proportion to the population of the two cities, about 30,000 gallons of milk may be consumed every day in the great metropolis.

In Paris, everything is done, from the highest function of government to the pettiest public convenience, by an "administration."—Hence the purveyance of milk to the Parisians is effected by an "*administration*" which was formed by, and remains under the surveillance of, Monsieur the Prefect of police. The whole country around the capital is laid under contribution to supply it with milk, some of which comes from a distance of fifty miles. The details of this important *administration* are as follows:—In certain villages near to Paris, are situated large establishments, which serve as depots for the reception and distribution of milk. Of the largest, one belongs to M. Delanos, at Cormeille-en-Vixen, on the road to Dieppe, and another to M. Delacour, at Envery. From each of these central establishments—*laiteries centrales*—a number of light carts are despatched twice a day, to collect the milk from the different farmers, each having a round or district of its own. These vehicles start and arrive with the punctuality of a clock, so that, if the country people are not ready with their quota of milk at the minute the collector calls, they lose the sale of it. These collections are so managed, that each charioteer arrives at the central depot with his milky freight exactly at the same hour. A certain portion of it is retained in the house to be converted into cream, butter, and cheese, and the rest is sent on direct to Paris. M. M. Delacour and Delanos have distributed throughout the capital a vast number of little milk shops, which their friend the prefect of police, has placed in such parts of the town as will prevent rivalry between them; so that each of these great milkmen has a separate territory, over which, in the matter of milk, he despotically presides. From these local depots —*laiteries*—the public obtain their milk with a punctuality quite equal to that with which they receive letters through the post. M. Delacour rents above seventy of these small shops; but the older established, M. Delanos, boasts of nearly double that number.—There are, besides, smaller proprietors in direct correspondence—by railroad and other public conveyances—with cow-feeders and farmers in the neighborhood of Paris. M. Lenoir, an eminent statist, computes, that in 1837, about 8,760,000 francs—above £350,400—were spent for milk in Paris.

The milk-trade of London has, like that of Paris, its great proprietors. Of cow-keepers, the representatives of the late Mr. Rhodes, of the Hampstead road, and of Mr. Laycox, of Islington, must be considered the aristocracy. There was a tradition respecting the former gentleman's establishment, which may serve to show its magnitude; namely, that so many as a thousand cows could never be maintained upon it; for so sure as the the thousandth was added to the stock, one of the nine hundred and ninety-nine died, so as to leave that exact number alive, and no more. The herd of the Islington proprietor is, we have been told, equally large. There are, besides, less cow-feeders, whose stock varies from twenty to a hundred head.

To the establishments of the larger suburban proprietors, milk retailers repair twice a day, purchase the article at the wholesale price, take it to their own homes, where—unless the craft be much libelled—the quantity is much increased at the expense of the quality, before delivered to the public. The London milk-trade, then, is divided into two great branches, consisting of those who keep cows, and those who merely sell milk. Sometimes, however, these two departments are united, and the same individual retails the produce of his own stock, which in an over-crowded city like London, is almost universally stall-fed. The denizen of the provinces, while threading his way through a dense, close, and pestiferous neighborhood, may be occasionally startled, while peeping into a cellar, or what was once a parlor, to behold a cow or two tied up to a sort of manger, there in all probability to be imprisoned during the term of their natural lives, never having enjoyed the sight of a green field since the days of their calfhood. The milk yielded by these unlucky animals, must be of a very inferior description; yet even that is adulterated. According to the occupation abstract of the census of 1841, the number of persons employed in feeding cows and selling milk, was 2764.

It is perhaps wrong to stigmatize the whole of these individuals as deteriorating the article they deal in; for, doubtless, a great many are honest traders, and do not sophisticate their milk. One thing is certain, that some in this line of business, lest they should be suspected of the practice, drive their cows about the streets, and guarantee the genuineness of the commodity by milking the poor beast before the customers' eyes. Yet adulteration must be very generally carried on, else "the chalk and water of London" could never have so firmly established itself as a proverb as it has done. It is said of a celebrated comedian, that when he first came to London from the rural districts, he imagined that real milk was unattainable; and finding the chalk and water supplied to him as such, very badly mixed, he one morning, in the simplicity of his heart, presented two vessels to the milkseller, saying, "he would, if convenient, take the ingredients separate, for he preferred mixing them himself." As a fresh proof of the difficulty of obtaining good milk in London,

we may instance the fact, that in noblemen's families, where the consumption is great, the supply is drawn directly from farms in the vicinity of the metropolis. The great tavern and hotel keepers have taken dairy farms on their own account, in despair of obtaining genuine articles by other means.

It must not, however, be inferred, that London is the only place where milk is adulterated. With all the centralising regulations of the Paris police, the article is very largely vitiated in that city, and we are led to believe, in every other place where the demand for the nutritious aliment is great. Many have been the efforts to suppress this fraudulent manufacture; but hitherto they have proved abortive. Lately, however, science has aided in the detection, and a certain Dr. Donné has invented two instruments, by one of which the proportion of water added to any quantity of milk can be readily found out, while the other enables us to ascertain the relative richness of cream. The first will prove of essential value not only to the London public, but to the inhabitants of all large cities. It is called a lactometer, and consists of upright tubes of glass placed one within the other. The suspected milk, poured into this simple machine, very soon separates itself from the adulterating water, the proportion of which to the rest of the liquid, shows itself by means of a scale of degrees, marked on the outside of the tube. We have not yet heard whether the hawk-eyed police of Paris have adopted the invention as a detective power, but a paragraph from the Belgian journal assures us that the Brussels officials have. On the 27th of last June, a body of police, armed with lactometers, posted themselves at the gates of the city, and condemned and seized no fewer than eighty large cans of milk. The consequence has been, that the denizens of brussels have subsequently had no cause to complain of being supplied with bad milk. Thanks to Dr. Donné, his lactometer, and the municipal police, they get the full benefit of some of the finest milch cows in the world, which feed upon the unequalled pastures of the Belgian meadow-land.

The lactometer would be a useful instrument in the hands of the London public. By it they would at least be able to ascertain how much water they are made to drink in their milk, and thus, by discovering the extent of the adulteration, gradually remedy it. We have not seen either of the learned Donné's machines, and are indebted for a description and figures of them to the 86th number of *L'Illustration Journal Universel.* [*Chamber's Journal.*

MILKING COWS.

The owners of cows should pay particular attention to milking. Children should not be trusted with this business, and there are many grown people who never milk well, though they have been brought up to the business.

If you would obtain all the milk from the cow, you must treat her with the utmost gentleness; she must not stand trembling under

your blows nor under your threats. She may at times need a little chastisement, but at such times you need not expect all her milk.

Soon after the bag has been brushed by your hand, and the ends of the teats have been moistened a little with milk, it flows in rapidly, and all the veins or ducts near the teats are completely filled. Then it must be drawn out immediately or you will not get the whole. You must not sit and talk—you must not delay one moment, if you would have all the cow is then ready to yield.

The udder should be moved in every direction at the close of milking, and the hands may beat it a little, in immitation of the beating which the calf gives it when he is sucking. An expert milker will make the cow give one quarter more in butter than a majority of grown milkers will.

One season, says an experienced writer, we kept four cows in the home lot; there was but little difference in the quantity of milk given by each. We had a *very steady* hired man of forty years of age; he was so slow the cows had no patience with him.

We milked two of the cows, and he the other two, and we were but a little more than half as long as he in milking, though we got the largest mess by about one quart. On our remonstrating, that he did not draw out all the milk, he said his cows would not yield so much as those milked by us. We then made an exchange; he milked our two, and we milked his. In three weeks time the case was reversed; our mess exceeded his by nearly one quart. He never failed to strip his cows to the last drop; but his *intolerable moderation* prevented his obtaining what an active milker would have done.

Young learners may practice on cows that are soon to be dried off. They should be taught *at first* how to take hold of the teats, and they will remember it; but how common it is to let each person choose his own mode of milking! Learners should know that the hand should be kept very near the extremity of the teat, if they would milk with ease. The left arm should always press gently against the leg of the cow; for if she is inclined to kick, she cannot, with any force; she cannot *strike* an object that leans against her; but if she raises up her foot, as she often will when her teats are sore, the milker will be ready to ward off and keep it from the pail, much better than when he sits far off from the cow.

If heifers are made tame and gentle by frequent handling when they are young, they are not apt to kick the milker; their udders should be rubbed gently before calving; it is quite as grateful to them as carding. But if they are suffered to run wild till after they have calved, they cannot be expected to be gentle when you first attempt to milk them; they often acquire bad habits, and are not broken of them through life. [*Emigrant's Hand-Book.*

TO PREVENT SWELLING FROM A BRUISE.

Immediately apply a cloth, five or six folds, dipped in cold water, and new dipped when it grows warm.

FRUIT TREES.

Instead of continuing the old practice of having alternate bearing alternate bearing and barren years for fruit trees, those who cultivate them would do well to note this fact: When young trees come into bearing for the first time, about the time the fruit is setting, if the most of it is taken off, and this continue for a few years in succession, leaving every year about the same quantity on the trees, they will, by the time they have become of sufficient size to be profitable, acquire the habit of bearing every year.

[*Columbia, So. Carolinian.*

To secure the fruiting of a tree.—Select a tree furnished with blossom buds, just as they are beginning to expand. Take a potato fork, and with it make holes all over the surface of the space occupied by the roots, heaving the earth by pressing on the handle, and having dissolved 1 oz. of nitre to 3 gallons of water, fill the holes with a solution. No manure must be given. Should after stoning, the tree appear unable to sustain the fruit, the following preparations may be applied in the same manner. To 1 gallon of blood, add 1 gallon of water, and 1 oz. of potash. Stir the whole well together, and when it has settled, pour off the liquid, and mix 1 gallon of this liquid with 1 gallon of water, and pour into holes made in the manner already described. [*Condensed from Gar. Chron.*

Experiment with Tar.—I promised to give you the result of an experiment which I had made with tar in preserving the peach and nectarine trees. It is so very simple and cheap, that all admirers of good fruit may have flourishing trees, and a chance for eating good fruit. As soon as the scion attains the size of a man's finger, which is generally about the first of autumn, remove the earth from about the root, and deposite around the stock of the tree a half pint of soft tar, rubbing at the same time the body of the scion for six or eight inches above the surface with tar; then replace the dirt previously removed. This process must be repeated each succeeding year, say in the month of June, increasing the quantity of tar according to the growth of the tree. My own experience enables me to say, that this receipt is infallible. GEORGE C. DOBSON.

Mayoning, Va. Jan. 31st, 1845. [*Southern Planter,*

ORIGIN OF FRUITS.

Youth will find it interesting to inquire from what quarters of the world, and in what age, our most principal fruits have originated.—The apple, in all its innumerable varieties, is said to have been entirely derived from the crab apple, which grows wild in nearly every part of Europe and the United States. The apricot is a fruit of the plum tribe, which grows wild in Armenia, and was introduced into Europe in the 16th century. The peach is a native of Persia, and was introduced into Europe in the year 1562. The pear grows wild

in all parts of Europe, and is cultivated in all temperate climates. Its culture is very ancient, many varieties having been known to the ancient Greeks and Romans. At present there are about 200 varieties fit for the table. Plums were first brought from Syria, but are now well known in all temperate climates. Musk-melons were first brought from Egypt. Black and red currants, gooseberries and raspberries, grow wild in all parts of Europe and America.

[*Wes. Reserve Mag.*

VALUABLE DISCOVERY.

A valuable discovery of the use of ground plaster of Paris, as a disinfecting agent, has been made by the keeper of the N. Y. State Prison at Auburn. His communication on the subject, published in the Albany Argus, is as follows :—

"*Mr. Editor*,—An improvement has been made at the State Prison at Auburn, which is calculated to promote the health and comfort of the officers and convicts, and which may be applied to so many valuable uses, that I think it ought to be authoritatively communicated to the public.

Hydrosulphate of Calcium, common unprepared ground plaster, has the power of attracting the offensive parts of all animal effluvia, forming two new substances, sulphate of ammonia, and carbonate of lime, which are inodorous and harmless. By sprinkling a very small quantity of plaster in places that generate foul air, the adjacent atmosphere is rendered pure and wholesome, The convicts come out of their cells in the morning free from smell. Exhalations from the lungs, &c., are corrected by a very light sprinkling of plaster, on the floors and galleries after sweeping. It may be mixed with whitewash, but causes it to dry slowly. Its use will be found a harmless, cheap, and effectual means of correcting all foul exhalations from animal substances, whether in prisons, jails, poor houses, barracks, or other places: By it stables and other nuisances about public and private houses, in cities and villages, may be kept from odor, and the farmer may keep his stables and manure heaps salubrious, whilst he prevents the escape of much fertilizing matter in the form of gas. The atmosphere in the streets of populous places, may be purified by occasionly sowing plaster at the rate of a bushel to the acre, and in the crowded dwellings of the poor, by mixing it in whitewash, sprinkling it on the floors, or setting it out moistened, in shallow vessels.

Its action on malaria is not known, but I have little doubt but that if rightly used, it will check the progress of yellow fever, plague and other contagious diseases.

I claim no credit as an inventer. In view of the present state of chemical science, and the use which has been already made of gypsum in the manufacture of poudrette, it is not improbable that

its valuable properties may be known to many. To prevent misapprehension, however, arising from erroneous publications on the subject of chemistry, I will state that for the gradual decomposition of plaster by animal effiuvia, no more water is required than will be absorbed in a moist atmosphere. Willing to be held responsible for the correctness of the above communication, and desirous that it may be made beneficial to a portion of the human family, I hope I shall not be considered wanting in delicacy, for offering it over my own signature.

U. F. DOUBLEDAY,
Keeper of the State Prison at Auburn.

NEW POST-OFFICE LAW.

We present the following synopsis of the most important sections of the New Post-Office Law, for the benefit of our readers and subscribers.

Sec. 1. Provides that single letters for a distance of 300 miles and under, shall pay a postage of five cents—over 300 miles, the postage shall be ten cents; double letters shall be double postage; triple letters, triple those rates; quadruple letters, quadruple those rates; each letter weighing not more than half an ounce shall be charged as a single letter; double weight, double postage, and so on. Drop letters two cents. Advertised letters two cents extra.

Sec. 2. Newspapers not larger than 1900 square inches, for a distance of 30 miles from the place of publication, free of postage—for a greater distance, within the State where published one cent—for any distance exceeding one hundred miles, out of the State, one and a half cent postage.

Sec. 3 Circulars, handbills, &c., folded as letters, but not sealed, two cents each for any distance—and pamphlets, magazines and periodicals, and every other description of printed matter, two and a half cents each, if of no greater weight than an ounce, and one cent for each additional ounce—every fraction of an ounce over half an ounce, shall be counted as a full ounce.

Sec. 5. Repeals the franking privilege, except to persons hereinafter named.

Sec. 6. Requires officers of the Government who have heretofore enjoyed the franking privilege, to keep accounts of postage on letters relating to the business of their offices, which accounts are to be paid from the contingent fund of the department to which they may belong. Postmasters, whose commissions amount to less than $25 a year, may be allowed more by the Postmaster General, provided the increase does not amount to more than fifty per cent. on letter postage accruing at his office.

Sec. 7. Provides for the continuance of the Act of June 30, 1834.

Sec. 8. Provides that members of Congress, Delegates from Territories, Secretaries of the Senate and Clerk of the House, may send and receive, free of postage, any letter or packet not exceeding two ounces in weight; and all letters and packages, petitions and memorials, exceeding this weight, received during the session of Congress, and relating to official or legislative duties, shall be paid out of the contingent funds of the two Houses.

Sec. 9. Provides that a fine of $150 shall be imposed upon any person or private express, who shall regularly carry letters over any mail route.

Sec. 10. Makes it unlawful for stage coach, railroad car, steamboat, &c., and for any servant or conductor of either, which regularly performs trips at stated periods, between towns or cities, to carry letters, except such as relate to some article conveyed in such boat, stage, &c.

Sec. 15. This section defines "mailable matter," and shows that nothing in the act shall be construed, so as to prevent any person from regularly carrying books, magazines, newspapers, or pamphlets, not marked, directed or intended for immediate distribution to subscribers or others, but intended for sale as merchandize. The carrying of mailable matter in packages or otherwise, will subject those concerned to a penalty.

Sec. 16. Prescribes a fine not exceeding five thousand dollars, and imprisonment for not less than six months, nor more than five years, for counterfeiting Post-office stamps, envelopes, &c.

Sec. 17. Defines the meaning of the word newspaper, and permits the usual free exchange of newspapers among the publishers of the same.

Sec. 19. Provides for the letting of contracts to the lowest bidder —and provides that no new contractor shall be obliged to take at valuation, or purchase in any way, the stock and vehicles of previous contractors on the same routes. It also requires that letters shall be published in papers having the largest circulation, provided the price is not higher than is now paid—in case of dispute as to the amount of circulation of papers, the postmaster shall receive evidence and decide.

Sec. 21. This section provides that all causes of action arising under this act may be prosecuted before any Circuit or District Court of the United States, &c.

Sec. 22. Provides that for any deficiency in the revenues of the Post-office Department, the sum of $750,000 be appropriated.

Sec. 23. Provides that in case the sum of $750,000 be insufficient to meet any deficiency in the revenues of the Department, then a further sum may be drawn from the Treasury, provided the entire expenditure of the Department shall not exceed $4,500,000 annually.

Sec. 24. This last section continues the franking privilege to the widows of Presidents Harrison and Madison.

LETTER FROM AN OLD SUBSCRIBER.

We insert the following Letter for the purpose of showing the general feeling among the *Old Planters*: without aid and patronage from the *Young Planters*, our exertions will be fruitless to spread the knowledge of modern AGRICULTURE, as developed by the science of CHEMISTRY. Why should we abandon so worthy a calling, while there is so much to be done to advance its beneficial effects among us. We hope, therefore, to be remunerated for the loss of our worthy *old* subscriber, by the additional names of two or three young agriculturists, who will be willing to make an effort for their improvement in agriculture.—EDITOR.

"Bainbridge, Decatur County, Georgia.

Dear Sir,—If my indebtedness, as subscriber, for the Southern Agriculturist, has not been satisfied by my friends, Messrs. ———, of your City, you will do me the favor to present my account to them for the Agriculturist up to the end of the present year, (1845) at that period you will please discontinue my subscription, and stop the sending of your *formerly valuable periodical*. The "tariff of protection" has operated so severely against the agricultural interest of myself, and not being able at my time of life, to change my pursuit, to the more profitable interest of manufacturing, I am constrained to retrench my expenses, and especially that part that has been devoted to the improvement of agriculture—*it not now being worthy of an effort for improvement.*

I remain, my dear sir, very respectfully, &c."

May 27th, 1845.

TRIBUTE OF RESPECT.

At a meeting of the *Agricultural Society of South-Carolina*, held at their Farm, on Tuesday, 17th June, the following Preamble and Resolutions, offered and adopted; were directed to be recorded on the journals and published in two papers.

Since our last meeting, it has pleased Almighty Providence to remove from among us our late esteemed Vice-President ROBERT W. ROPER. Society sustains a loss whenever a just man, using with discrimination the gifts of fortune, is taken away.—And assembled together on this occasion, we sensibly feel that a man of active mind, honorable purpose, and energetic character, has been removed from the sphere of his usefulness. Associated with us for several years, his zeal knew no abatement in our cause, we have learned the value of his assistance, and the healthful influence of his exertions to preserve in their legitimate course the objects of our institution. Stricken down in the fulness of his strength, we believe what he he has achieved was but a partial development of that which he desired to do. And now that he rests from his labor, we would point with satisfaction to his efforts in our State Legislature, in behalf of Agriculture, as an incentive to action in others, and a monument to himself more enduring than eulogy.

As an officer of this Society, we turn with mournful pleasure to the recollection of his urbane and dignified deportment—ever mindful of the courtesies of life, his social relations with us were so colored by their influence, as to leave the abiding regret in the hearts of all, that they can never more be renewed.

Therefore, Resolved, That the Agricultural Society of South-Carolina, has sustained a loss by the death of their Vice-President, ROBERT W. ROPER, and the cause of Agriculture in our State, has been deprived of a firm and valuable supporter.

Resolved, That as a tribute of respect for his memory, and deep sympathy with his Relict for her bereavement, a copy of the Preamble and Resolutions be forwarded to her with the respects of the Society.

From the minutes of the Society, JOS. F. O'HEAR, *Secretary.*

DISSOLUTION.

The undersigned have sold out their entire interest in the "Bommer Manure Method" to Mr. George Bommer, of N. Y; in consequence of which the partnership heretofore existing between us, was dissolved on the 6th ultimo by mutual consent.

Our agents are requested to make up their accounts to the 6th of November, and forward them to Tho. M. Abbett, Baltimore who is solely authorised to settle.

For any transactions after that date they will account to Mr. Bommer.

TH. M. ABBETT,
CHARLES BAER,
JOHN GOULIART.

Baltimore, Dec. 14, 1844.

N.B.—Charles Baer is the General Agent for Mr. Bommer in Georgia, and John Gouliart his General Agent for the State of Maryland.

BOMMER'S MANURE METHOD.

We have the satisfaction to announce to the Planters, Farmers and Gardeners of the vicinity of Charleston, that the Books with the Patent right, which Mr. Baer has caused to be sent on to the subscriber for disposal, have been received from Baltimore, and may be had of him on the terms before specified. Those who have bespoke them, will do well to call and obtain copies early. He also has received a report made to the Legislature of Maryland in favor of the method, which is daily gaining the public confidence whenever it is known. In the mean time we refer our readers to the last December and March Nos. of the Southern Agriculturist for some information on the subject.

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In a course of Lectures for the Board of Agriculture, delivered between 1802 and 1812. By Sir H. Davy.

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LIST OF PAYMENTS.

Mr. Jas. W. Keels, Murray's Ferry,	1845	Mr. Barnard S. Elliott,	1845
Mr. Nathaniel Heyward,	1845	Mr. Wm. E. Simmons,	1843, '44, '45
Mr. Charles Heyward,	1845	Mr. P C. Grimball,	1845
Col. T. D. Condy,	1843 & 1844	Mr. John Harleston,	1845

TO OUR READERS.

The contents of our July Number will be found highly interesting; for besides our "*Advice to the uninformed,*" it contains an abundance of instructions on other agricultural subjects:—on the Improvement of Soils, and on the Arrest of Moving Sandy Soils, from Boussingault's Rural Economy; on Electricity in Agriculture; on Manures; on Orange Trees, Peach Trees, &c.; on Fencing; on Tanning; on Rearing Sheep, Turkies, &c.; on adulterated Milk, and Milking Cows, &c.; a Letter from an old Subscriber on withdrawing; and the Tribute of Respect to the memory of Robert W. Roper, Esq., by the Agricultural Society of South-Carolina.

We would call the attention of our subscribers to the New Post-Office Law, which goes into operation with the publication of our July Number; from a synopsis of it, inserted at pages 278--279, it will be perceived, that with us it will make a very great alteration in the charge of circulating our monthly, as the postage will be but

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